



JET IGNITION SYSTEMS T/A, DEVICE 6E20

TRAINING CATEGORY:

BASIC SCIENCE (Electricity)

ORIGINATING AGENCY:

DCNO/AIR

SECURITY CLASSIFICATION:

Device 6E20 is unclassified.

PURPOSE:

The purpose of the training device is to represent the jet ignition systems of carrier fixed wing aircraft. The training device will enable the student to get classroom experience in performing operational checks and diagnosing and replacing malfunctioning components or circuits.

INTENDED USE:

The trainees will generally be enlisted personnel, E-3 and below. Training will take place at Aviation Electrician's Mate School.

A trainer will provide for the testing of a greater number of trainee discriminations than

would be provided using actual aircraft. The troubles have a degree of difficulty and are similar to actual troubles experienced in the Aviation Electrician's Mate field.

FUNCTIONAL DESCRIPTION:

The purpose of the Jet Ignition System is to initially ignite the fuel/air mixture during the engine start sequence. A typical system consists of an engine driven ignition alternator, an ignition exciter, a spark igniter, and various control switches.

The Jet Ignition Trainer shall display all system electrical components and controls required to operate the system as contained in the carrier fixed wing aircraft. An A-7A aircraft shall be used as a model system for the trainer. The control of the system shall be represented as in actual aircraft. The device shall simulate a jet ignition system that consists of an ignition alternator, exciter, and igniter. All actions that would normally be observed when running through the start procedure or conducting an operational check in an aircraft shall be observable on the trainer. The trainee shall be able to determine

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if a malfunction exists by applying power and performing an operational check; isolating malfunctions to a component or circuit, using trouble shooting procedures, schematic, and/or appropriate test equipment. Also performs point to point continuity checks using AN/USM-311 multimeter. The trainer shall consist of the following major components:

1. Display Panel - shall depict the operation of the Jet Ignition System. It shall contain the pilot/copilot's station; jet ignition system schematic, and AN/USM-311 multimeter.
2. Master Console - shall contain all the student evaluation indicators. It shall enable the instructor to insert one of eleven malfunctions into the simulated system.
3. Schematic Diagram - a schematic and parts list shall be furnished with the trainer.
4. Protective Cover - made of heavy duty vinyl, equipped with zipper and pocket for manuals.
5. Training Device Clock - shall indicate total time device is connected to power.

An alarm system shall be available to the instructor. It shall alert the student and instructor when a wrong procedure has been attempted. When the alarm is triggered the training situation shall freeze with no further operations capable of being performed on the trainer. A reset button is available to reset the trainer after counseling the student.

The system shall be built with a replace/repair counter which counts everytime a student attempts a repair/replace action, also an elapsed time indicator. These items shall indicate if a trainee is attempting to analyze the system or is randomly selecting repair/replace actions and the time expended to correct a malfunction.

PHYSICAL INFORMATION:

The trainer frame structure shall be constructed from an aluminum alloy weldment or welded steel beam components. The dimensions of trainer display area shall be approximately 1.0 meters long by 0.6 meters high.

Total weight of trainer display panel shall not exceed 40 Kilograms.

The panel face shall be a light color (white/beige) with the components and connecting lines a dark color. All front panel markings shall be covered with a wear resistant coating to prevent marring or obliteration of the markings.

ENVIRONMENTAL CHARACTERISTICS:

The training equipment shall withstand the following climatic conditions:

Temperature

- (1) Operating: 15° to 45° C
- (2) Nonoperating and Storage: -20° to 65° C

Relative Humidity - up to 95% condensation due to temperature change.

INSTALLATION AREA:

Classroom

POWER REQUIREMENTS:

The trainer is designed to permit operation from a 110/115 volt, 60 Hz power source with a maximum load of 30 amperes.

REFERENCE PUBLICATIONS (NOT SUPPLIED):

1. MIL-HDBK-472
(Maintainability Prediction)
2. NTEC Bulletin 301-2
(Parts, nonstandard; Design Selection, Procedures for)

PERSONNEL:

Instructor: One (1)

Student: One (1) or Two (2)

CONTRACT IDENTIFICATION:

Manufactured by Educational Computer Corp., Orlando, FL under NAVTRASYSNEN Contract No. N61339-78-C-0139.

LOCAL STOCK NUMBER:

6910-LL-C00-4738